

Issue 7: Export of Electronic Products - Reference: ESHB 2488, Section 1 (3) j.

The bill directed Ecology to work with the US Environmental Protection Agency to determine the amount of electronic waste being exported from Washington subject and not subject to federal regulation. The bill further directed Ecology to identify methods to determine if exports of electronic waste from Washington are in compliance with national laws in destination countries.

There is currently no way of knowing how much electronic product is exported for reuse or recycling in foreign countries. Exports are not track in the level of detail needed. Exports are tracked by codes established by the Census Bureau and assigned by the exporter. These codes are known as harmonized tariff codes. There are no separate codes for international trade in waste electronics for recycling and reuse. When electronic products are exported as a recyclable commodity, they are not subject to reporting requirements established by 40 CFR 262. The codes that can be used to record their export might include “recyclable materials” which includes everything from plastics to paper to scrap metals; or “televisions” which include all televisions use or new.

There is a potential of petitioning for additional codes to track recyclable materials separately. The amount of time necessary for that process is unknown.

We do know how much hazardous waste has been exported to foreign countries due to reporting requirements established by the federal government. Under 40 CFR 262, any hazardous waste that is exported must be reported to the US EPA. The EPA has made their information on hazardous waste exports from Washington available to Ecology. There is no reporting of electronic waste being exported.

According to anecdotal information from environmental groups and recycling businesses, the percentage of electronic waste collected for recycling that eventually is exported offshore is quite high.¹ The Basel Action Network (BAN), a Seattle based group that tracks this issue, believes that the figure for Washington State is probably around 50%¹. Earlier, BAN estimated the figure at around 80%, but since then much of the waste has been directed to more responsible recyclers that refuse to export hazardous components. The 50% figure, while speculative, is realistic because the economics of the trade makes sense. Asian markets pay the highest for metal scrap, the labor costs there for low-tech and often dangerous recycling is very cheap, and due to environmental norms in North America, consumers are willing to pay recyclers to take their equipment. Material processors charge consumers to take their products for recycling and then, after processing sell the material to Asian scrap brokers. Further, due to the imbalance in trade between the US and China, the cost of sending back a container to China is at the low end of the shipping business because China needs containers for export. In the mean time, there is no way to regulate the export of materials designated as recyclable. Materials can slide through the ports of Washington un-noticed. When delivered to the buyer in the receiving country, there are no mechanisms that create a traceable path back. The buyer owns the material and is at liberty to determine what is done with it, even if it is disposed.

The Basel Action Network has provided these additional comments:

While the export of the electronic waste is not illegal, the importing of hazardous wastes by most Asian countries is. This is due to two reasons. First, there are national import prohibitions for electronic waste in some countries. China, most notably, has had an

¹ “Exporting Harm: The High-Tech Trashing of Asia”, www.ban.org

import ban in place for the last 5 years. The second reason is due to the Basel Convention on the Control of the Transboundary Movement of Hazardous Wastes and Their Disposal. Under the Basel Convention, certain electronic equipment at end-of-life, going for recycling and/or disposal, is considered to be a hazardous waste. Among other electronics, this includes cathode ray tubes found in monitors and TVs, as well as circuit boards, which are likely to qualify as hazardous waste because of their high leaded-solder content.

Most countries of the world are Parties to the Basel Convention (currently the number of Parties or ratifiers is 165). The United States is not a Party to the Convention. The Basel Convention stipulates that Parties cannot normally trade in hazardous wastes with non-Parties without a special multilateral or bilateral agreement, consistent with the Basel Convention. The US is Party to one such agreement for export and that is an agreement with the OECD group of 30 developed countries. However, developing countries in Asia and elsewhere, which are almost all Basel Convention Parties, are forbidden from importing hazardous electronic waste from the United States. In fact, the list of countries for which import of hazardous electronic waste from the US is illegal is around 130 countries (attached).

It is expected that despite the violation of the laws of importing countries, this export still takes place from Washington State and elsewhere in the United States, regularly. The reason for this is that it is very difficult for importing countries to enforce import bans due to the sheer volume of containers arriving at ports, the difficulty in assessing whether equipment is working or non-working (wastes), and a general lack of enforcement infrastructure in developing countries. Further, many exporters are known to provide bribes to ensure that containers arrive uninspected. Finally, as long as the US remains outside of the Basel Convention or otherwise refuses to control its hazardous electronic waste exports, the export is entirely legal in the US territory. However, it is not advisable for Washington to continue to allow such aiding and abetting of such illegality even if it technically occurs on foreign shores.

Meanwhile other developed countries are increasingly stepping up enforcement and controls on such exports. The European Union has banned such exports of hazardous electronic waste in accordance with a Basel Convention decision (Basel Ban Amendment) and has recently engaged in an enforcement exercise to educate their exporters and waste brokers. Canada has notified all recyclers that it is forbidden to export electronic waste to China (because of the Chinese import ban). Australia has strictly regulated its exports and requires significant testing to show that equipment being exported is not waste but is in working condition.

In the absence of similar federal action, States have tried to place restraints on export. It remains to be seen whether these efforts will prove effective in stemming the export tide. Lastly, will new information become known in relation to hazard characteristics of electronic products and the materials from which they are made? Concerns over materials such as polybrominated diphenyl ethers (PBDEs), the fire retardant contained in most covered electronic products, are being raised.

Issue 8: The Effects of Landfill Disposal Bans and Suitability of Landfills for Disposal of Electronic Products - Reference Section 1 (2) f and Section 1 (3) g.

Disposal bans of various products have been adopted by state and local governments throughout the country. Generally, disposal bans are imposed to improve the quality of the waste stream entering waste management facilities. For example, cathode ray tubes are banned from disposal in Massachusetts due to the fact that the state is heavily dependent upon incineration of solid wastes. Eliminating lead sources improves the quality of air emissions and ash that will be disposed.

Bans are also used to encourage utilization of particular materials rather than disposal. Materials have value that should be retained within the economic system. A metals disposal ban, for example, would assure that materials such as aluminum and steel are recycled.

Again, local government has lead responsibility for solid waste management. While there are no statewide product disposal bans in Washington, 13 counties in the state have initiated bans or actions that have the same result, on disposal of certain electronic products. The attached spreadsheet summarizes these local government actions in Washington.

There is no evidence that disposal bans result in illegal dumping of the banned product.

Contemporary landfills are designed to assure that, to maximum extent possible, contamination of groundwater, surface water, and air are minimized. Leachate collection systems gather and recirculate, or treat, the water within the landfill. Methane gas generated within the landfill is collected for energy use, but is most generally flared.

There is an axiom within the field of engineering that says that anything engineered will eventually fail. Landfills are no exception. Landfills are designed and constructed to protect the environment during the active life of the landfill and some time after closure. There has been no experience with contemporary landfills after closure that would suggest that a landfill becomes benign at some point in the future. While "financial assure" regulations have been established to assure a source of funding for post closure care of these facilities, it is not known how long post closure activities will be required.

The concept of using sanitary landfills for disposal of wastes was adopted in the late 1960s when air quality concerns caused the closure of open burning dumps. The sanitary movement itself began in the mid to late 1800s as a strategy to reduce the spread of disease. Burning wastes was accepted as the primary method of ridding society of pathogen bearing materials. As the term implies, the need for management of wastes was a public health concern. The need for sanitary disposal of wastes to assure that disease was not spread through vector contact was paramount. When air quality became an environmental and public health issue, open burning dumps were closed and wastes were buried in the ground.

Until recently, wastes disposed consisted primarily of food waste, animal carcasses, ash and "rubbish" (no longer usable or repairable items of furniture, paper, etc.).

As our ability to create more sophisticated and complex materials has increased, especially over the past 35 years, wastes have in turn become more complex. Metals and human made compounds the like we have not seen before are being disposed of in landfills at an increasing rate.

The long term effects of the materials, in combination in a landfill, or upon potential release into the environment are not known.

Issue 9: Business Financial Incentives - Reference Section 1 (3) h

Financial incentives can be effective tools to encourage public policy. It is important that when considering incentives that they be used at leverage points that will result in the fastest and most complete adoption of the policy.

Within product life-cycles there are many potential leverage points. The state needs to consider the following when creating financial incentives:

- At what point within a product life-cycle can the incentive be applied and is that point within the influence of the state?
- What is meaningful, in financial terms, for an incentive to be effective?
- What will be the overall systems effect of an incentive? Will the incentive, if applied at one point of the life-cycle, have a “domino effect” throughout the system that results in the intended outcome? Will it have an unintended consequence?
- Will the incentive, while providing a positive effect related to the specific public policy, have a negative effect on a different policy?
- What will be the financial gains or losses to gross state product; jobs, business and state revenues?
- Is the incentive an appropriate signal economically over the long term?

From analysis of the material flows from covered electronic products it would be safe to say that marketing to users of secondary materials to be used in the manufacture of new products provides a block to additional materials being used. If at any point along the material flow cycle there is a blockage, the flow slows down, prices drop and good, usable material becomes waste, destined for landfill disposal.

The state of Washington could provide incentives to manufacturers that would use secondary materials in their manufacturing processes. Two incentives worth pursuing include:

1. A resource conservation tax credit against the company's B & O tax liability; and
2. Low interest loans to businesses to provide necessary capital to build manufacturing facilities within the state and use recovered materials as feedstock for their new products.

Issue 10: Economic Development Opportunities, Stimulating Materials Markets and Jobs

- Reference Section 1 (3) f.

It is generally accepted, and documented, that adopting public policy that directs materials to recycling creates more jobs and stimulates more economic activity than does waste disposal activity. The main activities in this state related to electronic product recycling have been collection and processing. There are no end use markets for recovered electronic products within the state. Material is exported out of state, with most going out of country.

What are the opportunities for business recruitment of users of recovered electronic materials within the state?

Are there ways to improve and increase processing capacity within the state in order to market a value added product, resulting in more economic activity staying state-side?

The recommendations in Issue 9, particularly the provision of low interest loans, would go a long way in attracting end users of recovered materials to Washington, creating markets for those materials and jobs for workers.

Issue 11: Urban and rural recycling challenges - Reference: Section 1(2) a.

A state as diverse as Washington faces many challenges. One size fits all solutions do not work well here. Our current solid waste management laws direct local governments to create solid waste management plans that determine the best systems for unique local circumstances.

Even though there is ubiquity of products, materials and marketers throughout the country, it is difficult to reverse the product delivery system to take back product after they have been distributed. As population densities get smaller, cost effective collection options become limited.

Local governments have assured that services for collection of wastes and recyclable materials are available to all within their planning jurisdiction. In some areas, drop-off systems are effective, while in dense urban populations, curbside and drop-off opportunities might be offered.

Electronic products pose unique problems for collection. Among them, size and weight concerns related to worker health, safe handling of glass picture tubes containing lead and exposure of the product to moisture. These issues make certain kinds of collection, particularly at curbside, difficult if not impractical.

Collaborating with local government solid waste planning jurisdictions and taking advantage of available public and private infrastructure will assure that services are available throughout the state that are convenient and practical in both urban and rural settings.

Issue 12: Impacts on local governments, nonprofit organizations, waste haulers, and other stakeholders - Reference: Section 1 (2) d.

Currently, the responsibility for planning for and managing municipal solid waste falls to local governments. Each county, and some cities, must write a solid waste management plan describing the systems that will be employed to manage waste generated within their jurisdiction, twenty years into the future. A system to provide recycling services within the jurisdiction must be described.

New waste streams pose new challenges to local governments in these planning and management processes. When recycling infrastructure is created, a capital investment is made to process that materials based on the known waste stream. When the waste composition changes, as it has in relation to the increasing volume of electronic products being disposed, the need to modify the processing systems and upgrade capital facilities becomes necessary. These upgrades are most often paid by the citizen rate payers. Pressure to keep costs low, while continuing to respond to the demands for increased services places both local governments and their contracted service providers (waste haulers) in difficult positions.

The use of computers and their rapid technological improvements have created a situation where their functional life is short. Even though they continue to function mechanically, they no longer serve the needs of users as new equipment is introduced that makes the older equipment obsolete.

Because it still “runs” consumers believe that the equipment still has value. Many consumers have turned to charities to donate older equipment. Charities have found themselves saddled with equipment that can not be sold to consumers and can not be disposed of or recycled without significant cost.

Many computers that are considered surplus from government agencies are given to school districts around the state. The functional life of these units is short, as most of the useful life was used by the government agencies. School districts, especially districts in lower income areas of the state, are recipients of these machines. They end up being responsible for end of life disposal. Many are returned to General Administration, Surplus Properties. Surplus Properties contracts for disposal or recycling or auctions these items in volume to the highest bidders.

Overall, the responsibility for disposal of end of life electronics falls upon the last owner, or recipient. Along with the responsibility comes the expense. Often times the last holder of the product is the least likely to be able to afford the disposal costs.

County	Landfill	Incinerator	Transfer Station	Export?	Bans	Bans on Residents or Business?				Recycling Programs						
						Computers	Televisions	Monitors	Others	Partnership	Ongoing	One-time	Type	Fee	Incorporated	Subsidized
Adams	0	0	2	Klickitat County landfill	N	-	-	-	-	N	N	N	-	-	-	-
Asotin	1	0	0		N	-	-	-	-	Pb	N	Y	Drop-off	Resident free, business pay	N	N
Benton	1				Y ¹	B,R	B,R	B,R	-							
Chelan	0	0	3	Douglas County landfill	Y	B	B	B	-	Pb	Y	N	Annual drop-off	Determined by weight		
Clallam	1	0	0	No	N	-	-	-	-	N	N	N	-	-	-	-
Clark	0	0	2	Morrow, Oregon landfill	N	-	-	-	-	Pb-Pr	Y	N	Drop-off	Resident free, business \$10/item	N	Y
Columbia	0	0	1	Walla Walla landfill	N	-	-	-	-	N	N	N	-	-	-	-
Cowlitz	1	0	0	No	N	-	-	-	-	N	N	N	-	-	-	-
Douglas	1	0	0		Y	B	B	B	-	Pb-Pr	Y	N	Annual drop-off	\$15,\$25/TV, \$10/CPU, \$12/monitor	N	N
Ferry	0	0	1	Klickitat County landfill	Y ²	-	-	B,R	-	N	N	N	-	-	-	-
Franklin					N	-	-	-	-							
Garfield	0	0	1	Asotin County landfill	N	-	-	-	-	N	N	N	-	-	-	-
Grant	1	0	0	No	Y	B	B	B	B	Pb	N	Y	Collection event	\$0.35 per pound	N	N
Grays Harbor	0	0	6	Klickitat County landfill	N	-	-	-	-	N	N	N	-	-	-	-
Island	0	0	4	Klickitat County landfill	N	-	-	-	-							
Jefferson	0	0	1	Klickitat County landfill	N	-	-	-	-	Pr	Y	N	Drop-off	\$0.35 per pound	N	N
King	1				Y	-	B	-	-	Pb-Pr	Y	N	Take-It-Back network	End-of-life fees	N	
Kitsap	0	0	1		Y	-	B,R	B,R	-	Pr	Y	N	Drop-off	\$17-40/TV, \$10/monitor	N	N
Kittitas	0	0	2		N	-	-	-	-	Pb	Y	N	Drop-off	Unknown	N	
Klickitat	1	0	0	No	N	-	-	-	-	N	N	N	-	-	-	-
Lewis	0	0	2	Klickitat County landfill	Y	B,R	B,R	-	-	Pb	Y	N	Drop-off	\$2/CPU, \$8/monitor	N	N
Lincoln	0	0	1	Klickitat County landfill	N	-	-	-	-	N	N	N	-	-	-	-
Mason	0	0		Klickitat County landfill	N	-	-	-	-	N	N	N	-	-	-	-
Okanogan	0	0	3	Klickitat County landfill	N	-	-	-	-	N	N	N	-	-	-	-
Pacific	0	0	2		N	-	-	-	-	N	N	N	-	-	-	-
Pend Oreille	0	0	3	Klickitat County landfill	N	-	-	-	-	N	N	N	-	-	-	-
Pierce	1	1	0	No	Y	-	B	B	-	Pr	Y	N	Drop-off, curbside	Varied	N	N
San Juan	0	0	3	Arlington, Oregon	N	-	-	-	-	N	N	N	-	-	-	-
Skagit	0	0	3	Klickitat County landfill	N	-	-	-	-	N	N	N	Refer to King County	-	-	-
Skamania	0	0	1	Klickitat County landfill	N	-	-	-	-							
Snohomish	0				Y	B,R	B,R	B,R	B,R	Pb	Y	N	Drop-off	\$20/TV, \$10/CPU, \$14/monitor, \$27/cc	Y	
Spokane	0	1	2	Klickitat County landfill	Y	B,SQG	B,SQG	B,SQG	-							
Stevens	1	0	4	No	N	-	-	-	-	N	N	N	-	-	-	-
Thurston	0	0	1	Klickitat County landfill	Y ³	-	B,R	B,R	-	Pb	Y	N	Drop-off	\$5 plus weight, \$10/CRT	Y	Y
Wahkiakum	0	0	1	Cowlitz County landfill	N	-	-	-	-	N	N	N	-	-	-	-
Walla Walla	1	0	0		Y	LQG	LGQ	LQG	-	Pr	Y	N	Drop-off, pick-up	Varied		
Whatcom	0		4	Klickitat County landfill	Y	B	B	B	B,R							
Whitman	0		1	Arlington, Oregon	N	-	-	-	-	N	-	-	-	-	-	-
Yakima	2	0	1		N	-	-	-	-	N	-	-	-	-	-	-

¹Electronics are not official banned, but are not accepted at transfer stations. ²Electronics are not officially banned. The county inspects load and diverts computer monitors from landfill whenever possible. ³Electronics are not officially banned, but B=Business, R=Residents, SQG=Small quantity generators, (SQG includes residents and unregulated generators that fall below LQG thresholds), LQG=Large quantity generators, Pb=Public, Pr=Private
